FMJ3382 Energy Data, Balances and Projections 6.0 credits

Energidata, energibalanser och projektioner

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for FMJ3382 valid from Autumn 2018

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

Avslutad kandidatutbildning inom ingenjörs/naturvetenskapligt program eller kan visa på motsvarande och likvärdig kunskap

Completed Bachelor's Degree within Engineering / Natural Sciences Programme or equivalent knowledge

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

This course is intended to teach the student on how to read, use and do national-level energy systems balances and projections.

Intended learning outcomes:

- Motivate why strategic national energy analysis, policy and planning require a reliable energy - balance and projections of future energy demand.
- Understand the links between human activities, the need for energy services and the energy required to drive them.
- Understand the classification of energy data as it pertains to developing a national energy balance.
- Understand the mechanics of a national energy balance.
- Gain insight into the various methodologies used to project future energy demand.
- Understand and gather relevant (energy, social and economic) data required to develop both a national energy balance and future demand projections.
- Learn and apply relevant software tools and use the gathered data for a static as well as future energy scenario assessment

Course contents

The course will be conducted in the combination of lectures, computer labs, mandatory seminars, project report and an exam. Lectures and labs will be delivered by some local and external experts coming form various research organizations. The course will be taught both by KTH lecturers and guest lecturers from organizations such as the International Energy Agency (IEA) and UN-DESA. After completion of all computer labs students will be required to do one seminars followed by a detailed project report and an exam at the end of course.

The course instructors will provide appropriate projects list during the first two weeks of the course. Each projects report will be completed by group of 3 to 4 students. The project report should be documented in a written report in English and also the peer review of project report of opponent group will be done by each group. For the mandatory seminar during the course, the students will prepare the presentation of their progress in the computer lab exercises they performed.

The student will gain exposure to energy data classification, collection and projections activities of the International Energy Agency (IEA), the UN Statistical Division (UN Stats) as well as the International Atomic Energy Agency (IAEA).

Course literature

The course literature is by the lectures material and multiple optional readings that will be suggested after each lecture/lab.

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

In order to complete this course, students must:

• Attend the 3 lab sessions (please note that there will be an attendance list, kindly let the instructors know in advance if there is any important reason to skip them).

• Submit one deliverable corresponding to each lab (e.g. 3 in total). These deliverables are graded on a P/F basis and the relevant instructions are provided in the lab description documents.

• Submit the final 3 credit project report. This will be graded on an A-F basis.

• Attend the 1 credit seminar where you present your results and are also the opponent to another group

• Take the 2 credit final exam which is graded on an A-F basis and will consist of both multiple choice and open questions.

Final grade = 0.6*Project grade + 0.4*Exam grade

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.